



Rhode Island Department of Health
Patricia A. Nolan, MD, MPH, Director

Office of Health Statistics
Turning numbers into knowledge

Vol. 2, No. 1

January 2000

Edited by Jay S. Buechner, PhD

Rhode Island's Cardiac Services Registry

Michael K. Dexter, M.P.A.,
and Jay S. Buechner, Ph.D.

Cardiovascular diseases are increasingly likely to be diagnosed and treated with a variety of high-technology medical and surgical procedures. In order to monitor and evaluate the use of these procedures, the Rhode Island Cardiac Services Registry (CSR) was established under an agreement between the Rhode Island Department of Health and the five hospitals in the state offering these procedures (Kent County Memorial Hospital, Memorial Hospital of Rhode Island, Miriam Hospital, Rhode Island Hospital, and Roger Williams Medical Center). The CSR collected information on the provision of the following services to adults (ages 18 and older) during the period from November 1994 through December 1997:

- (1) cardiac catheterization with angiography
- (2) percutaneous transluminal coronary angioplasty (PTCA)
- (3) open-heart surgical procedures (primarily coronary artery bypass grafts, or CABG)

This analysis presents a brief summary of utilization data for calendar years 1995 - 1997 reported in detail in the CSR's annual reports.^{1,2} The CSR has also analyzed and reported data on the outcomes of these procedures in a separate report.³

Methods. Hospital staff identified CSR-covered procedures

from hospital procedure logs and abstracted data on each procedure from patient medical records for processing by the CSR contractor, Clinical Trials & Surveys, Inc. (C-TASC). Items collected for each procedure included patient identifiers and demographic characteristics, risk factors for heart disease, patient's symptoms being treated, expected source of payment, procedural details and results, and patient outcomes. C-TASC linked procedures performed on the same patients during multiple hospital admissions and performed all data analysis from the linked data file.

Results. During the three-year period 1995 - 1997, a total of 17,964 angiographies, 5,955 PTCA's, and 4,685 open-heart surgeries were performed in the five hospitals offering one or more of these services. Just under half of patients underwent diagnostic angiography only, and most of the remainder underwent diagnostic angiography followed either by PTCA or open-heart surgery. (Table 1)

Over the three-year period, both the numbers of procedures and the number of patients undergoing these procedures increased. The number of patients increased by 13.8% from 1995 to 1997, the number of angiographies by 15.4%, the number of PTCA's by 20.4%, and the number of open heart surgeries by 19.4%. The numbers of procedures performed increased more rapidly than the number of patients because the proportion of patients having more than one procedure increased.

Most of the open-heart surgeries performed were coronary artery bypass graft (CABG) surgeries, either performed alone or in combination with procedures to repair or replace heart valves. (Figure 1) Of the surgeries not involving CABG, the majority were heart valve procedures.

Table 1. Types of Procedures Performed on Cardiac Patients, Rhode Island, 1995 - 1997

Type of Procedure*	1995		1996		1997		Total	
	N	(%)	N	(%)	N	(%)	N	(%)
Angiography Only	2606	(47)	2886	(47)	2817	(45)	8309	(46)
Angiography and PTCA	1340	(24)	1525	(25)	1650	(26)	4515	(25)
Angiography and Surgery	1066	(19)	1214	(20)	1224	(20)	3504	(20)
Angiography, PTCA and Surgery	75	(1)	97	(2)	100	(2)	272	(2)
PTCA Only	169	(3)	149	(2)	144	(2)	462	(3)
Surgery Only	247	(5)	295	(5)	333	(5)	875	(5)
PTCA and Surgery	5	(0)	3	(0)	4	(0)	12	(0)
Total Patients	5508	(100)	6169	(100)	6272	(100)	17949	(100)

*Patients may undergo more than one procedure of a type during the course of their treatment, e.g., repeat angiography.

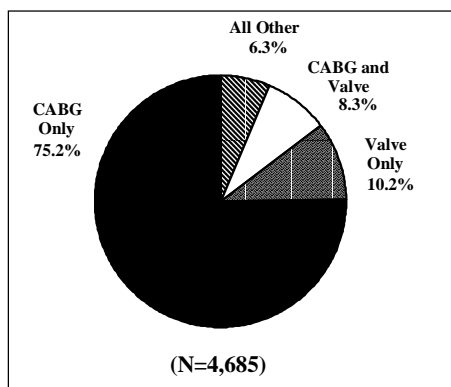


Figure 1. Open-Heart Surgeries by Type of Surgery, Rhode Island 1995-1997.

The two most common interventional procedures, PTCA and CABG, differed in their rates of performance among patients of different ages. In all age groups examined, PTCA was more often performed than CABG, but among adults ages 44-64, PTCA was between two and three times more often performed than CABG. (Figure 2) Among persons ages 65-

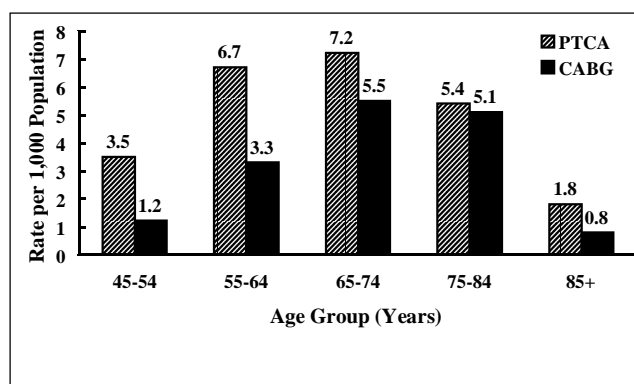


Figure 2. Percutaneous Transluminal Coronary Angioplasty (PTCA) and Coronary Artery Bypass Graft (CABG) Surgery Procedures per 1,000 Population, by Age Group, Rhode Island, 1995-1997.

84, CABG was nearly as likely to be performed as PTCA. Overall, the majority of invasive cardiac services were provided to patients ages 65 years and older, including approximately half of all angiographies and PTCA's and two-thirds of all open-heart surgeries.

Discussion. Several states, including New York, Pennsylvania, and New Jersey, collect statewide data on open-heart surgery, and at least one state, New York, collects statewide data on PTCA. These data are used to measure and publish risk-adjusted mortality rates for each provider (hospital and physician) performing CABG and/or PTCA in those states.

During 1994-1997, Rhode Island was the first state to collect statewide linked data on angiography, PTCA, and open-heart surgery. These data have been published in comprehensive annual utilization reports and in a report on statewide and hospital-specific outcomes of these procedures.¹⁻³ Currently, the Department of Health is working with hospitals, cardiologists, and cardiac surgeons to determine the future configuration of a cardiac services registry that will best serve the needs of the people of Rhode Island.

Michael K. Dexter, M.P.A., is Assistant Administrator for Community and Planning Services, Office of Health Systems Development. Jay S. Buechner, Ph.D., is Chief, Office of Health Statistics, and Assistant Professor of Community Health, Brown University School of Medicine.

References

- ¹Clinical Trials and Surveys Corporation. 1995 and 1996 Annual Reports of the Rhode Island Cardiac Services Registry. Providence, RI: Rhode Island Department of Health (1998).
- ²Clinical Trials and Surveys Corporation. 1997 Annual Report of the Rhode Island Cardiac Services Registry with 1995-1997 Trends. Providence, RI: Rhode Island Department of Health (in press).
- ³Rhode Island Department of Health. Outcomes Report of the Rhode Island Cardiac Services Registry, 1995-1997. Providence, RI (in press).

Originally published in the January 2000 issue of *Medicine & Health / Rhode Island*